[20110/00401]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Zeif
Serial No.	:	10/090,102
Filed	:	March 2, 2002
For	:	Method and Apparatus for Sequentially Collecting and Analyzing Real Time Data with Interactive Monitoring
Art Unit	:	2857
Examiner	:	Patrick J. Assouad

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By: Oleg F. Kaplun, Reg. No. 45,559 Date: November 7, 2005

TRANSMITTAL

In response to the Notice of Appeal filed August 9, 2005 and the Advisory Action dated July 5, 2005, transmitted herewith please find an Appeal Brief (in triplicate) for filing in the above-identified application. Please charge the deposit account of **Fay Kaplun & Marcin, LLP** in the amount of $250.00. The Commissioner is hereby authorized to charge the **Deposit Account of Fay Kaplun & Marcin, LLP NO. 50-1492** for any additional required fees. A copy of this paper is enclosed for that purpose.

Respectfully submitted,

Dated: November 7, 2005

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PATENT
Attorney Docket No.: 20110/00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re: Application of:	)	
	)	
Alex G. Zeif	)	
	)	
Serial No.: 10/090,102	)	Group Art Unit: 2857
	)	
Filed: March 2, 2002	)	Examiner: Patrick J. Assouad
	)	
For: METHOD AND APPARATUS FOR SEQUENTIALLY COLLECTING AND ANALYZING REAL TIME DATA WITH INTERACTIVE MONITORING	)	**Board of Patent Appeals and Interferences**

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

In support of the Notice of Appeal filed August 9, 2005, and pursuant to 37 C.F.R. § 41.37, Appellant presents in triplicate an appeal brief in the above-captioned application.

This is an appeal to the Board of Patent Appeals and Interferences from the Examiner's final rejection of claims 18-24 and 34-46 in the final Office Action dated April 18, 2005 and the Advisory Action of July 5, 2005. The appealed claims are set forth in the attached Claims Appendix.

1. Real Party In Interest

This application is assigned to Linxberg Technologies, LLC, the real party in interest.

2. Related Appeals and Interferences

There are no other appeals or interferences which would directly affect, be directly affected, or have a bearing on the instant appeal.

3. Status of Claims

Claims 1-17 were previously cancelled. Claims 18-24 and 34-46 have been rejected in the Final Office Action and are the subject of this appeal.

4. Status of Amendments

All amendments submitted by the Appellants have been entered.

5. Summary of Claimed Subject Matter

Claim 18 recites a method comprising the steps of collecting and analyzing real time material information from a production line to determine a material cost, collecting and analyzing real time operator information from the production line to determine an operator cost, colleting and analyzing real time equipment information from the production line to determine an equipment cost, collecting and analyzing real time indirect cost information from the production line to determine an indirect cost, determining actual production cost as a function of the aforementioned costs and generating cost comparison data as a function of the actual production cost and a scheduled production cost.

Claim 43 recites a method comprising the steps of collecting real time operator and equipment information, analyzing the operator and equipment information as a function of time and generating a productivity report based on the analyzed operator and equipment information.

The invention is directed at a method for sequentially collecting and analyzing real time data with interactive monitoring. *Specification*, p.72 lines 1-4. In collecting and analyzing material information, the invention utilizes automated collection modules that can monitor the number of units that both enter and leave each station being monitored. *Specification*, p. 9 lines 1-14. The system may be implemented for any manufacturing facility in the production of goods, the implementation of a process, or the generation of a commodity such as electricity. *Specification*, p. 5 lines 9-16. Furthermore, the invention is applicable to automated production facilities, and those traditional facilities that are less automated. *Specification*, p. 5 line 17-p. 6 line 7.

The invention employs the use of monitoring modules at any point in a manufacturing process that collects data regarding the operation and the efficiency of the manufacturing process at each point. *Specification*, p. 7 line 15-p.9 line 18. All the data is fed to centralized control modules and a database to gauge the efficiency of the system. *Specification*, p. 9 line 18-p.11 line 19. The invention is also able to diagnose faults and monitor the function of the equipment in the manufacturing line. *Specification*, p. 17 lines 11-24 and p. 39 lines 7-19. The data collected by the modules can consist of data regarding production, downtime of equipment, associated costs, employee information operating the equipment, and equipment operation. *Specification*, p. 8 lines 1-14, p.15 lines 14-26, p. 17 lines 11-24, p. 20 lines 11-17. The collected data can then be calculated into various different statistics that may depict the operation, and efficiency of the manufacturing process through graphical and textual files. *Specification*, p.21 lines 6-15, p. 34 lines 13-21, p. 35 line 9-p.41 line 3, p. 44 line 18-p.53 line 6, p.59 line 4-p.63 line 16. The invention also discloses dissemination of the data to on-site personal computers ("PC") and other computing equipment that may be located elsewhere through communications systems. *Specification*, p. 23 lines 3-20, p. 28 line-25-p.29 line 8, p. 53 line 19- p. 54 line 12.

6. Grounds of Rejection to be Reviewed on Appeal

I. Whether claims 18-24 and 34-46 are unpatentable under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application No. 2002/0038235 to Musafia et al. in view of either Lin et al. ("A PC-based Real Time Measurement System for Factory Automation on quality Control and production Control", IEEE, 1989) or Szabados ("Intelligent Monitoring System Used to Control Azynchronous Production Systems", IEEE, 19-20 May 2001).

7. Argument

I. The Rejection of Claims 18-24 and 34-46 under 35 U.S.C. § 103(a) as obvious over Musafia in View of Either Lin or Szabados Should be Reversed.

A. The Examiner's Rejection

In the final Office Action, the Examiner rejected claims 18-24 and 34-46 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/0038235-a1 to Musafia et al. ("Musafia") in view of either *A PC-Based Real Time Measurement System for Factory Automation on Quality Control and Production Control*, IEEE (1989) by Lin et al. ("Lin") or *Intelligent Monitoring System Used to Control Asynchronous Production Systems*, IEEE (2001) by Szabados ("Szabados ").

Musafia teaches a productivity monitoring system. The system and method disclosed in Musafia collects data related to the productivity of the manufacturing process. Musafia describes a series of databases which may maintain collected or other data. *Musafia*, ¶¶ [0031] – [0050]. Musafia acquires various data regarding the system that it is monitoring and performs calculations regarding the costs and productivity of the system. Musafia goes on to perform a calculation of plant productivity that incorporates the number of jobs performed by the workers via the number of units produced over a given period of time *Musafia*, ¶¶ [0062]-[0083].

Although Musafia discloses a system that monitors the productivity of the system, the system gives no insight as to *how* the equipment is running. It merely gives a high-level view of the productivity and the costs associated with the productivity of the system.

Similar to Musafia, Szabados discloses a "'Bird's eye view' of the plant production system." *Szabados*, page 35. Once again, the article makes no mention of the collection of low-level data which would allow inspection of the performance of specific machines. The publication goes on to state that the system provides "unprocessed numerical indicators (system and subsystem input/output counts and bank levels)...on-line throughput models...[and] processed numerical indicators in report format (average cycle-tie, job-per-hour-rate, number of undercycles, number of overcycles, etc.)." *Szabados*, page 35. This data only deals with the rate of production of the equipment. These statements show Szabados' emphasis on collecting data regarding the number of units produced over a specified time-period, but fails to address the collection of data regarding how equipment had performed during production. No data is collected regarding the performance and operation of the equipment in the production line.

With regard to Lin, as the Examiner points out, the system disclosed is "to monitor *quantities* of all check points in production lines." (emphasis added) *Lin*, Abstract. Once again, the system described in this article monitors the number of units being produced and does not collect any data revealing the performance of any of the equipment being used on the production line. Data that is collected and analyzed in Lin include: "(1) the input quantity...(2) quality and quantity of output products...(3) total labor...(4) work-man-hour throughput production...(5) operational efficiency." *Lin*, page 57. All of these data categories deal with the number of units produced as a function of the pre-production materials and labor used in the production process. Lin fails to make any mention of the performance and operation of the equipment being used in production. Furthermore, although "measurements" are taken in the system described in Lin, these measurements refer to the testing being performed on the units being produced. "The function for bad data elimination will be...to mark the bad data, and put

the bad product to return conveyor." *Lin*, page 58. Thus, these measurements are not taken from the equipment being used on production, but rather on the products being produced as a means to implement a quality control measure by automating the testing and returning of defective products. Thus, the data being collected and analyzed in Lin once again only deals with the output of the machines, and the quality of the units produced, and not the functioning of the equipment in production.

B. The Cited References Do Not Disclose a Method for collecting real time equipment information from a production line as Recited in Claims 18-24 and 34-46

Independent claim 18 recites a method for "collecting real time equipment information from the production line," and independent claim 43 recites a method comprising "collecting real time equipment information."

None of the cited references discusses this ability to collect this data regarding the low level equipment information that the present invention discloses. Musafia merely deals with the productivity of the equipment and uses calculations to arrive at cost figures associated with this productivity. Szabados also deals with the numerical indicators relating to production. It allows the user to inspect the raw productivity of each machine, but collects no data regarding the performance and function of the equipment in addition to the raw quantities of units produced as compared to materials input over a period of time. Lin discloses a system that monitors the quantities of materials and labor utilized in the production process, allowing the user to obtain a figure for operational efficiency. However, since Lin is also dealing with the issue of quality control, the system is able to take measurements and test the product being produced. However, none of the measurements or tests being performed relate to the equipment in the manufacturing process. The tests and measurements are of the products being produced to ensure the functionality of the products and not the equipment on the manufacturing line.

In contrast, the present invention collects data regarding the operation and

performance of the equipment in addition to monitoring the productivity and costs associated with the manufacturing process. A simple example of this equipment information is the "operation mode data." *Specification*, ¶ [0004]. This could be as simple as whether the machine is "on" or "off". Although this simple example may seem insignificant, if a machine were "off", the systems disclosed by the references would only collect data telling the operator that the specific equipment had produced no units. However, in the present invention, the operator would be able to discern why no units were produced by that specific equipment, and not just the fact that no units were produced. Furthermore, additional data is collected, such as "diagnostic information for the machine such as electrical load, pressure, temperature, etc." *Specification*, ¶[0017]. Furthermore, this equipment information introduces an element of control based off of the equipment information that is collected that is not possible in the cited references since the references do not teach the collection of this low-level equipment information.

> Typically, the information collected by a PLC is binary data that may be used to control the equipment such as through the opening and closing of contacts on a graphical ladder diagram that may be programmed into the PLC. Such binary information may include the opening and closing of process parameter switches (e.g., temperature, pressure, level, flow limit, etc.), electrical and mechanical interlocks, etc. However, there are PLC components or PLC rack components which may also collect analog information such as typical 4-20mA or 10-50 mA signals from process parameter instruments (e.g., pressure instruments, differential pressure instruments, etc.) or other types of analog inputs (e.g. thermocouple inputs, resistive temperature device (RTD) inputs, etc.). *Specification,* ¶[0036].

Furthermore, the present invention allows the verification of this low-level equipment information by independent sources to ensure the accuracy of the information and for redundancy. *Specification*, ¶[0054].

Accordingly, for at least the reasons described above, Applicant respectfully submits that neither Musafia, Szabados, or Lin, either alone or in combination, shows or suggests a method comprising: "collecting real time equipment information from the production line," as recited in independent claim 18 and "collecting real time equipment information" as recited in independent claim 43. Therefore, Applicants respectfully request that the rejection of claims 18,

and 43 be withdrawn. Because claims 19-24, and 34-42 depend from claim 18, and, claims 44-46 depend from claim 43, and, therefore respectively include all of the limitations of claims 18, and 43 it is respectfully submitted that these claims are also allowable and that the Board should reverse the rejections thereof.

8. Conclusion

For the reasons set forth above, the appellee respectfully requests that the Board reverse the final rejections of the claims under 35 U.S.C. § 103(a) and indicate that claims 18-24 and 34-46 are allowable.

Respectfully submitted,

Date: November 7, 2005

By: _____
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CLAIMS APPENDIX

18. A method, comprising the steps of:

collecting real time material information from a production line;

analyzing the real time material information to determine a material cost;

collecting real time operator information from the production line;

analyzing the real time operator information to determine an operator cost;

collecting real time equipment information from the production line;

analyzing the real time equipment information to determine an equipment cost;

collecting real time indirect cost information from the production line;

analyzing the real time indirect cost information to determine an indirect cost;

determining an actual production cost as a function of the material cost, the operator cost, the equipment cost and the indirect cost; and

generating cost comparison data as a function of the actual production cost and a scheduled production cost.

19. The method of claim 18, further comprising the steps of:

determining an actual operation efficiency as a function of the actual production cost and the real time equipment cost; and

generating efficiency comparison data as a function of the actual operation efficiency and a scheduled efficiency.

20. The method of claim 18, wherein the analyzing of the real time material information step includes a comparison of the real time material information with stored material information.

21. The method of claim 18, wherein the analyzing of the real time operator information step includes a comparison of the real time operator information with stored operator information.

22. The method of claim 18, wherein the analyzing of the real time equipment information step includes a comparison of the real time equipment information with stored equipment information.

23. The method of claim 18, wherein the combining step includes a comparison of the real time information with stored part information.

24. The method of claim 18, wherein the real time equipment information includes equipment failure data, and further comprising the steps of:

transmitting the equipment failure data to a maintenance post;

determining a response time for maintenance personnel to respond to the equipment failure data as a function of the transmitted equipment failure data and a repair time entered by the maintenance personnel in response to the equipment failure data.

34. The method of claim 18, further comprising the steps of:

analyzing the real time equipment information and the real time operator information as a function of time; and

generating a real time operator efficiency of an operator.

35. The method of claim 34, wherein the real time operator efficiency is generated for at least two operators in a production unit.

36. The method of claim 34, wherein the real time operator efficiency is generated for at least two operators in a service unit.

37. The method of claim 34, wherein generating the real time operator efficiency step includes a comparison of the real time operator information with stored operator information to determine a deviation of the operator cost from a scheduled operator.

38. The method of claim 19, wherein determining the actual operation efficiency step includes an analysis of the material cost, the operator cost, and the equipment cost.

39. The method of claim 38, wherein determining the actual operation efficiency step further includes an analysis of an energy cost.

40. The method of claim 38, wherein the material cost is a function of the operator cost and the equipment cost.

41. The method of claim 38, wherein the operator cost is a function of the material cost and the equipment cost.

42. The method of claim 38, wherein the equipment cost is a function of the material cost and the operator cost.

43. A method, comprising the steps of:

collecting real time operator information;

collecting real time equipment information;

analyzing the operator information and the equipment information as a function of time; and

generating a productivity report based on the time analyzed operator information and equipment information.

44. The method of claim 43, wherein the function of time is based on one of a production unit and a service unit.

45. The method of claim 44, wherein the production unit is a manufactured item.

46. The method of claim 44, wherein the service unit is a completed service task.

EVIDENCE APPENDIX

No evidence has been entered or relied upon in the present appeal.

RELATED PROCEEDING APPENDIX

No decisions have been rendered regarding the present appeal or any proceedings related thereto.